



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,088	02/02/2004	Ken Iizuka	248430US6	6566
22850 7590 07/05/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TSAI, TSUNG YIN	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 07/05/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/768,088	Applicant(s) IIZUKA, KEN	
	Examiner Tsung-Yin Tsai	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/2/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections – 35 USC 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 17-22 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In claims 17-22, a "computer program" is being recited; however, computer program would reasonably be interpreted by one of ordinary skill in the art as software, per se. This subject matter is not limited to that which falls within a statutory category of invention because it is limited to a process, machine, manufacture, or a composition of matter. Software is a function descriptive material and a function descriptive material is non-statutory subject matter.

Claim Rejections – 35 USC 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9-12 and 17-22 are rejected under 35 U.S.C. 102(b) as being unpatentable in view of Wendt (US 2002/0090109 A1).

Wendt discloses method (abstract disclose the method of the art, page 1 paragraph 0001 disclose that this a method to be carry out) carry out by a system (page 2 paragraph 0013 disclose format of the system by varies hardware means that carries out the directives, page 2 paragraph 0015 further disclose the system) regarding image matching between two images:

(1) Regarding claims 1, 9 and 17:

a correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction, this is also seen as the first step of a method, and first routine to be carry out on a image such that will be up to the standards/requirement for matching) for performing a Fourier transform and a log-polar coordinate transform (page 1 paragraph 0007 disclose apply log-polar and Fourier transform as part of the image processing for selected image) to said first image and said second image (page 2 paragraph 0013 disclose first and second selected pattern/images, page 2 paragraph 0023 disclose comparing the actual geometric of first selected pattern/image to that of the reference in stored memory, thus there are the first and second images) and generating correction information (page 3 paragraph 0033 disclose correction information such as actual and reference position and size which can further adjust image by resizing and rotation patter of image) of

said first image based on the results of said Fourier transform and log-polar coordinate transform (page 1 paragraph 0007 disclose apply log-polar and Fourier transforms to an image, page 3 paragraph 0033 disclose that these function apply to the first selected image); and

a matching means (page 2 paragraph 0023 disclose comparing between the first image and the reference image, this is also seen as the second step of a method, and second routine to be carry out on a image such that will be up to the standards/requirement for matching) for performing processing of correction of said first image based on said correction information generated (page 1 paragraph 0009 disclose applying the correction changes such as the transforms in the magnitude and phase and still able to see much of the content of the original selected first image, page 1 paragraph 0010 further disclose these image will be accounted, which is seen as applying correction, for rotation, resizing and other geometric alteration for patter detection of image frames) by said correction information generating means, processing of correlation of said corrected first image and said second image (page 2 paragraphs 0022 – 0027 disclose the correlation between two adjusted pattern/images, which further show that correction means of transforms are carry out than matching mean by the use of the transforms), and processing of matching the results of said correlation processing (page 2 paragraph 0023 disclose the matching means, page 2 paragraph 0027 further disclose what the matching means are match against and with what information between the two images of interest).

(2) Regarding claims 2, 10 and 18:

said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction) performs a further Fourier transform based on the results of said log-polar coordinate transform (page 1 paragraph 0007 disclose apply log-polar and Fourier transform as part of the image processing for selected image) of said first image and said second image (page 2 paragraph 0013 disclose first and second selected pattern/images, page 2 paragraph 0023 disclose comparing the actual geometric of first selected pattern/image to that of the reference in stored memory, thus there are the first and second images) and generates scalar information and/or rotation information (page 1 paragraph 0010 disclose computing and accounting for any rotation, resizing and other geometric alteration, page 2 paragraph 0027 disclose that these transformation does determination such as rotation angle or resizing/scalar factors) as said correction information based on correlation strength of said Fourier transformed first image and second image (page 2 paragraph 0022 disclose such correlation, page 2 paragraph 0023 disclose the correction information, and page 2 paragraph 0027 disclose the Fourier transformed images for correction and comparing analysis), and

said matching means (page 2 paragraph 0023 disclose comparing between the first image and the reference image) performs processing of

correction of said first image based on said scalar information and/or said rotation information generated (page 1 paragraph 0010 disclose accounting the selected image of interest for any rotation, resizing/scalar or other geometric alteration, page 2 paragraph 0027 disclose function such as log-polar, rotation angle and resizing factor are calculated, page 3 paragraph 0033 disclose that those deviation between the images and compare) by said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction).

(3) Regarding claims 3, 11 and 19:

wherein said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction) generates said scalar information and/or rotation information as said correction information (page 1 paragraph 0010 disclose accounting the selected image of interest for any rotation, resizing/scalar or other geometric alteration, page 2 paragraph 0027 disclose function such as log-polar, rotation angle and resizing factor are calculated, page 3 paragraph 0033 disclose that those deviation between the images and compare) based on correlation strength of phase information of said Fourier transformed first image and second image (page 1 paragraph 0009 disclose that phase of the Fourier transform of an image

contains most of the information of the selected images, such that this information can still disclose a large portion of information for inspection).

(4) Regarding claims 4, 12 and 20:

wherein said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction) performs a Fourier-Mellin transform (page 1 paragraph 0007 disclose applying Fourier-Mellin transform for image processing) to said first image and said second image (page 2 paragraph 0013 disclose first and second selected pattern/images, page 2 paragraph 0023 disclose comparing the actual geometric of first selected pattern/image to that of the reference in stored memory, thus there are the first and second images), performs processing for correlation between said Fourier-Mellin transformed first image and second image (page 1 paragraph 0007 disclose applying Fourier-Mellin transform for image processing on images of interest), and generates said scalar information and/or rotation information as said correction information (page 1 paragraph 0010 disclose accounting the selected image of interest for any rotation, resizing/scalar or other geometric alteration, page 2 paragraph 0027 disclose function such as log-polar, rotation angle and resizing factor are calculated, page 3 paragraph 0033 disclose that those deviation between the images and compare).

(5) Regarding claims 5, 13 and 21:

wherein said matching means (page 2 paragraph 0023 disclose comparing between the first image and the reference image) performs processing of correction of said first image based on said scalar information and/or said rotation information generated (page 1 paragraph 0010 disclose computing and accounting for any rotation, resizing and other geometric alteration, page 2 paragraph 0027 disclose that these transformation does determination such as rotation angle or resizing/scalar factors) by said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction), performs processing for Fourier transform (page 1 paragraph 0007 disclose performing Fourier and Mellin transform for image processing, page 1 paragraph 0009 disclose processing image with Fourier transform and extract data from the phase of the transform) to said corrected first image and second image (page 2 paragraph 0023 disclose utilizing calculated deviation between two images, where utilizing deviation is seen as correcting the selected images, page 3 paragraph 0033 disclose deviation between two image are calculated this is seen as the corrected information apply to selected images), and performs correlation processing based on said Fourier transformed (page 6 paragraph 0082 disclose correlation based on fast Fourier transforms) first image and second image (page 2 paragraph 0013 disclose first and second pattern, page 2 paragraph 0023 disclose comparing between the first pattern and a reference patter from storage,

page 3 paragraph 0033 disclose find the deviation between two images, the actual and the reference).

(6) Regarding claims 6, 14 and 22:

wherein said matching means (page 2 paragraph 0023 disclose comparing between the first image and the reference image) performs processing of correction (page 3 paragraph 0033 disclose calculating the deviation and using it to compare, this is seen as the performing correction) of said first image based on said scalar information and/or said rotation information (page 1 paragraph 0010 disclose computing and accounting for any rotation, resizing and other geometric alteration, page 2 paragraph 0027 disclose that these transformation does determination such as rotation angle or resizing/scalar factors) generated by said correction information generating means (page 3 paragraph 0033 disclose the deviation between the actual and reference is calculated, where this is seen as calculating the need correction information first in order for correction), performs processing for Fourier transform (page 1 paragraph 0007 disclose performing Fourier and Mellin transform for image processing, page 1 paragraph 0009 disclose processing image with Fourier transform and extract data from the phase of the transform) to said corrected first image and second image (page 2 paragraph 0023 disclose utilizing calculated deviation between two images, where utilizing deviation is seen as correcting the selected images, page 3 paragraph 0033 disclose deviation between two image are calculated this is seen as the corrected information apply to selected

images), and performs correlation processing based on phase information of said Fourier transformed (page 1 paragraph 0009 disclose applying Fourier transform to obtain phase information, where phase information is well know to contain most of the information in the image) first image and second image (page 2 paragraph 0013 disclose first and second pattern, page 2 paragraph 0023 disclose comparing between the first pattern and a reference patter from storage, page 3 paragraph 0033 disclose find the deviation between two images, the actual and the reference).

Claim Rejections – 35 USC 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-8, 15-16 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wendt (US 2002/0090109 A1) in view of Oosawa (US 2003/0039405 A1).

(1) Regarding claim 7-8,15-16 and 23-24:

Wendt teaches regarding matching means (page 2 paragraph 0023 disclose comparing between the first image and the reference image), corrected first and second image (page 2 paragraphs 0022 – 0027 disclose the correlation

between two adjusted pattern/images, which further show that correction means of transforms are carry out than matching mean by the use of the transforms), correlation due to phase information (page 1 paragraph 0009 disclose that phase of the Fourier transform of an image contains most of the information of the selected images, such that this information can still disclose a large portion of information for inspection).

Wendt does not teach regarding matching base on parallel movement information, by extraction of common areas and determination parallel information to see if movement information is smaller than predetermine amount of parallel movement.

However, Oosawa teach regarding image matching (title, abstract disclose image position matching, figure 1 and figure 3) base on parallel movement (page 1 paragraph 0008 discloses position matching of images comprising the performance by parallel / linear movement) and common areas (page 1 paragraph 0008 disclose image matching by areas that can be global, template regions; plurality of regions, which mostly are small regions) and determination parallel information to see if movement information is smaller than predetermine amount of parallel movement (page 1 paragraph 008 disclose image matching concern with parallel movement, where determination of the parallel shift quantity is required and obtain for image matching, such that a two-dimensional n polynomial function of $n > 2$ is use to. Where 2 is the determine number and n is the move. Examiner see this as one of the direct way to test and determine if the

parallel movement information n is smaller than predetermined amount of parallel movement value 2).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made use the image matching base on parallel movement and of common areas of Oosawa in the method of Wendt in order that it will have the desire improvement in comparative reading performance, which is not dependent on the skill level of the diagnostician (paragraph 0006), but if there is a diagnostician he will be able to accurately discern the difference between two images such that overlooking of a diseased portion can be prevented (page 1 paragraph 0007). This will further to be possible to obtain image of interest by globally matching with high degree of accuracy (page 2 paragraph 0011).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bloom et al (US Patent Number 6,282,300 B1) disclose rotation, scale, and translation resilient public watermarking for images using a log-polar Fourier transform.

Wendt (US 2002/0126870 A1) disclose method to detect watermark resistant to resizing and translation.

Reisman et al (US 2003/0169910 A1) disclose fingerprint matching using ridge feature maps.

Chaikin et al (US Patent Number 4,267,573) disclose image-processing system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsung-Yin Tsai whose telephone number is (571) 270-1671. The examiner can normally be reached on Monday - Friday 8 am - 5 pm ESP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tsung-Yin Tsai
June 5, 2007


JINGGE WU
SUPERVISORY PATENT EXAMINER